

CLAIMS

We claim:

1. A disposable protective undergarment arranged to be worn by a person having legs to trap and collect loose or liquid waste products of the person, said undergarment comprising a pants-shaped chassis having a front waist portion, a belly portion, a rear waist portion, a rear back portion, a crotch portion, and a pair of leg openings disposed on opposite sides of said crotch portion, with said crotch portion being located between said leg openings and having a front section and a rear section, said front waist portion and said rear waist portion being joined together at the sides of said chassis, said belly portion and said rear back portion being joined together at the sides of said chassis, each of said leg openings having a high-cut concave edge portion at said front section, a convex edge portion at said rear section and an intermediate edge portion along said crotch portion, said concave edge portion of one of said leg openings being of complementary shape to said convex edge portion of said one of said leg openings, said concave edge portion of the other of said leg openings being of complementary shape to said convex edge portion of said other of said leg openings, whereupon when said undergarment is worn said undergarment covers a substantial portion of the wearers leg beneath the buttocks, while a substantial portion of the wearer's leg where the leg meets the torso is exposed.

2. The disposable protective undergarment of Claim 1 wherein each of said leg openings is elasticized.

3. The disposable protective undergarment of Claim 2 wherein each of said leg openings is elasticized by at least one elastic thread extending along said concave edge portion, said convex edge portion and along said intermediate edge portion.

4. The disposable protective undergarment of Claim 1 additionally comprising a plurality of transversely extending elastic threads in said front waist portion, said belly portion and said rear waist portion.

5. The disposable protective undergarment of Claim 3 additionally comprising a plurality of transversely extending elastic threads in said front waist portion, said belly
5 portion and said rear waist portion.

6. The disposable protective undergarment of Claim 1 additionally comprising an absorbent core.

7. The disposable protective undergarment of Claim 5 additionally comprising an absorbent core and an insert sheet, and wherein certain ones of said transversely
10 extending elastic threads intersect with said elastic threads of said leg openings to form an enclosed, gasketed compartment for said liquid absorbent core to prevent the egress of liquid therefrom.

8. The protective undergarment of Claim 7 wherein said transversely oriented elastic threads comprise two first groups and two second groups, a first one of said two
15 first groups being located in said front waist portion and a second one of said first two groups being located in said rear waist portion, a first one of said two second groups being located in said belly portion and a second one of said two second groups being located in said rear back portion, and wherein said transversely oriented threads of said first groups are spaced closer to one another than said transversely oriented threads
20 of said second groups.

9. The protective undergarment of Claim 1 wherein said crotch portion is a separate member having a pair of sides and a pair of ends, one of said ends being

secured to said belly portion and the other of said ends being secured to said rear waist portion.

10. The protective undergarment of Claim 9 wherein each of said leg openings is elasticized by at least one elastic thread extending along said concave edge portion, by at least one elastic thread extending along said convex edge portion and by at least one elastic thread extending along said an associated one of said pair of sides of said
5 rectangularly shaped member.

11. The protective undergarment of Claim 10 wherein said separate member forming said crotch portion is of generally rectangular shape.

12. The protective undergarment of Claim 11 additionally comprising a plurality
10 of transversely extending elastic threads in said front waist portion, said belly portion and said rear waist portion.

13. The protective undergarment of Claim 10 additionally comprising a plurality of transversely extending elastic threads in said front waist portion, said belly portion and said rear waist portion.

14. The protective undergarment of Claim 1 wherein said chassis comprises a
15 non-woven material.

15. The protective undergarment of Claim 14 wherein said non-woven material comprises spunbond polypropylene.

16. The protective undergarment of Claim 1 additionally comprising a core
20 formed of a highly moisture absorbent material.

17. The protective undergarment of Claim 16 additionally comprising a fluid acquisition layer disposed over said core.

18. The protective undergarment of Claim 14 additionally comprising a core formed of a highly moisture absorbent material.

19 The protective undergarment of Claim 18 additionally comprising a fluid acquisition layer disposed over said core.

20. A method for manufacturing plural disposable absorbent articles, each of said absorbent articles comprising a front section, a rear section and an intermediate section, said method comprising the steps of:

(A) providing a web of material having a first longitudinal axis, a pair of generally linear side edges, a first elongated elastic member extending generally linearly parallel to said first longitudinal axis adjacent one of said side edges, a second elongated elastic member extending generally linearly parallel to said first longitudinal axis adjacent the other of said side edges, at least a third undulating curved elastic member extending generally parallel to said first longitudinal axis adjacent said first elastic member, and at least a fourth undulating curved elastic member extending generally parallel to said first longitudinal axis adjacent said second elastic member;

(B) severing said web along a longitudinal line between said third and fourth elastic members and generally parallel to said first longitudinal axis to form a front web section and a rear web section;

(C) separating said front and rear web sections from each other;

(D) providing an intermediate section having a second longitudinal axis, a pair of marginal side edges extending generally parallel to said second longitudinal axis, a front edge portion, a rear edge portion, a first elongated elastic member extending generally parallel to one of said marginal side edges, and a second elongated elastic member extending generally parallel to the other of said marginal side edges;

(E) securing said front edge portion of said intermediate section to said front web section and securing said rear edge portion of said intermediate section to said rear web sections so that said second longitudinal axis is generally perpendicular to said first longitudinal axis;

(F) severing said front and rear web sections along respective transverse lines extending perpendicular to said first longitudinal axis on opposite sides of said insert section.

21. The method of Claim 20 wherein each of said absorbent articles is in the form of protective undergarment, wherein said method additionally comprises the steps of:

(G) folding said intermediate section to bring portions of said front and rear sections contiguous with said transverse lines into engagement with each other and securing said sections together thereat, so that said severed front web section forms a front portion of said undergarment or pants and said severed rear web section forms a rear portion of said undergarment.

22. The method of Claim 21 wherein said method additionally comprises:

(G) providing a pair of web layers, each formed of a flexible material; and

(H) interposing said elastic members between said web layers and laminating said layers together to form said web of material.

23. The method of Claim 21 wherein said elongated elastic members are provided in the form of elastic threads.

24. The method of Claim 23 wherein said first elongated elastic member is one of a first group of plural elastic threads extending continuously generally linearly parallel to said first longitudinal axis adjacent one of said side edges, said second elongated

elastic member is one of a second group of plural elastic threads extending continuously generally linearly parallel to said first longitudinal axis adjacent the of said side edges.

25. The method of Claim 23 wherein said third elastic member is one of a third group of plural elastic threads extending generally parallel to said first longitudinal axis,
5 and said fourth elastic member is one of a fourth group of plural elastic threads extending generally parallel to said first longitudinal axis.

26. The method of Claim 25 wherein said third group of elastic threads are disposed in discontinuous segments spaced from each other in a direction parallel to said first longitudinal axis, and wherein said fourth group of elastic threads are disposed
10 in discontinuous segments spaced from each other in a direction parallel to said first longitudinal axis.

27. The method of Claim 26 wherein said method additionally comprises:

(G) providing each of said threads of said third group of elastic threads as a continuous member having undulating portions and linear portions interposed with each
15 other and wherein each of said continuous members is under tension, with said undulating portions of each of said continuous threads being adhesively secured to said web of material and said linear portion of each of said continuous threads being unsecured to said web;

(H) providing each of said threads of said fourth group of elastic threads as a
20 continuous member having undulating portions and linear portions interposed with each other and wherein each of said continuous members is under tension, with said undulating portions of each of said continuous threads being adhesively secured to said

web of material and said linear portion of each of said continuous threads being unsecured to said web; and

(H) severing each of said threads of said third and fourth groups of elastic threads at said linear portions to cause said each of said threads of said third and fourth groups of elastic threads to be disposed in discontinuous segments spaced from each other in a direction parallel to said first longitudinal axis.

28. The method of Claim 27 wherein said first elongated elastic member is one of a first group of plural elastic threads extending continuously generally linearly parallel to said first longitudinal axis adjacent one of said side edges, said second elongated elastic member is one of a second group of plural elastic threads extending continuously generally linearly parallel to said first longitudinal axis adjacent the of said side edges.

29. The method of Claim 32 wherein said web of material is moved in a direction parallel to said first longitudinal axis.

30 The method of Claim 29 wherein said web is severed along said longitudinal line between said third and fourth elastic members as it is moving.

31 The method of Claim 30 wherein said intermediate sections are provided at spaced apart intervals on said front and rear web sections as said front and rear web sections are moving in a direction parallel to said first longitudinal axis.

32. The method of Claim 31 wherein said intermediate section are secured said front and rear web sections as said web is moving.

33. The method of Claim 32 wherein the folding of said intermediate section, the securing of said front and rear sections together and the severing of said sections thereat is accomplished as said web is moving.